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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,571	06/24/2003	John Ziavras	PD-02-1026	1966

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EXAMINER

KIM, SANG K

ART UNIT	PAPER NUMBER
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3654

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/602,571

Applicant(s)

ZIAVRAS ET AL.

Examiner

SANG KIM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on After final 4/25/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 16, the term "spacecraft" is indefinite and vague. What constitutes the term "spacecraft"? In so far as the claims are understood, the term "spacecraft" defined by Merriam Webster Dictionary as: a vehicle or device designed for travel or operation outside the earth's atmosphere.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6, 8-16, 18-21 and 23-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Duchon, U.S. Patent No. 5716031.

With respect to claims 1 and 16, Duchon '031 shows a storage spool (51) and an output spool (another 51) mounted on a spacecraft (1, Merriam Webster Dictionary defines a "spacecraft" as: a vehicle or device designed for travel or operation outside the earth's atmosphere); and a flexible material (50) having a first end (near 51) coupled

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to the storage spool and a second end (near another 51) coupled to the outer spool; wherein a length of the flexible material is distributed between windings of the storage spool and the output spool to adjust mass properties of the spacecraft, see figures 2 and 10A-B.

With respect to claims 3-5 and 18-20, Duchon '031 shows the flexible material can have an indirect path (54) between the storage spool (51) and the output spool (another 51), wherein the indirect path is formed by one guide using an external roller or guides, see figures 10A-B.

With respect to claims 6, 8-10, 15, 21, 23-25 and 30, Duchon '031 teaches the storage spool is spring loaded to wind the flexible material onto the storage spool, as explained on column 4, lines 19-36.

With respect to claims 11-14 and 26-29, Duchon '031 teaches a motor assembly (12, 56, are not shown in detail, but consist of speed-reducing gears trains, i.e. a stepper motor with a gearhead) for winding the flexible material, as explained on column 1, lines 18-21.

Claims 1-2, 8, 10-13, 16-17, 23 and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Storaasli, U.S. Patent No. 5597141.

With respect to claims 1 and 16, Storaasli '141 shows a storage spool (36) and an output spool (another 36) mounted on a spacecraft (10, Merriam Webster Dictionary defines a "spacecraft": a vehicle or device designed for travel or operation outside the earth's atmosphere); and a flexible material (64) having a first end (near 36) coupled to

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the storage spool and a second end (near another 36) coupled to the outer spool; wherein a length of the flexible material is distributed between windings of the storage spool and the output spool to adjust mass properties of the spacecraft, see figures 1-3.

With respect to claims 2 and 17, Storaasli '141 shows a direct path between the storage spool (14 with 36) and the output spool (another 14 with 36), as shown in figure 1.

With respect to claims 8, 10-13, 23 and 25-28, Storaasli '141 teaches a motor assembly (38) comprises a stepper motor (34) with a gearhead (32) for winding the flexible material, as shown in figure 3.

Claims 1-2, 6-17 and 21-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Clarke, U.S. Patent No. 3151704.

With respect to claims 1 and 16, Clarke '704 shows a storage spool (20) and an output spool (near 14) mounted on a spacecraft (i.e., a case 10 which can be operational outside the earth's atmosphere, Merriam Webster Dictionary defines a "spacecraft" as: a vehicle or device designed for travel or operation outside the earth's atmosphere); and a flexible material (24) having a first end (near 25) coupled to the storage spool and a second end (near 54) coupled to the outer spool; wherein a length of the flexible material is distributed between windings of the storage spool and the output spool to adjust mass properties of the spacecraft (i.e., the case 10, which is operational outside the earth's atmosphere, will have a different center of gravity as the flexible material is wound around back and forth between the spools, see figures 1-4.

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With respect to claims 2 and 17, Clarke '704 shows a direct path between the storage spool (20) and the output spool (near 14), as shown in figures 1-4.

With respect to claims 6 and 21, Clarke '704 teaches the storage spool is spring loaded to wind the flexible material onto the storage spool, as shown in figures 1-4.

With respect to claims 7-10 and 22-25, Clarke '704 shows one or more latches (26, 36) to prevent the flexible material (24, a metal ribbon/wire) from disengaging the storage spool (20) or the output spool (near 14), as shown in figures 1-4.

With respect to claims 11-15 and 26-30, Clarke '704 shows a gearhead (48) with a motor assembly (near 46) where a motor would be connected to drive the spindle (14) and when it is not powered up, it allows the flexible material (24) to wind onto the storage spool, as shown in figure 4.

Claims 1 and 16 are rejected under 35 U.S.C. 102(b) as being Non Patent Literature described on Houston Chronicle's Space Chronicle.

The article explains that Hubble (i.e., a spacecraft) deployed in 1990 with three reel-to-reel recorders (i.e., a storage spool and an output spool). The reel-to-reel recorders can wind a flexible material back and forth; thus, the mass properties can be adjusted as the tape is wound back and forth (i.e., the mass of the tape may be so little that it would be difficult to measure the center of gravity, nevertheless, the center of gravity on board would change as the tape is wound back and forth).

Response to Arguments

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Applicant's arguments/remarks, see pages 6-9, filed on 4/25/05, with respect to the rejection(s) of claim(s) 1-30 under Hoyt '922 in view of Clarke '704 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Duchon '031, Storaasli '141, Clarke '704, and NPL STS-103.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The added recitation that the apparatus is mounted on the spacecraft necessitated the new grounds of rejection.

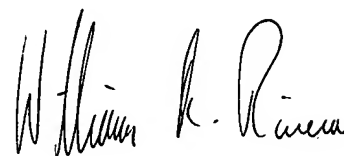
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG KIM whose telephone number is 703-305-3712. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:30 P.M. alternating Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki, can be reached on (703) 308-2688. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SK

5/6/05

A handwritten signature in black ink, appearing to read 'William A. Rivera', is written in a cursive style.

**WILLIAM A. RIVERA
PRIMARY EXAMINER**